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The author makes it clear that the pigment cells in the larvae of *Hyla* change their form, and thus the distribution of pigment in the skin. He feels that these cell processes may become more fixed in the adult, and that the changes in the distribution of pigment may be rather due to migration of the endoplasm carrying the granules along these fixed branches as many students have held. It is unsafe however to deny that they may still retain some ameboid powers of change of form even in the adult.

BEHAVIOR OF ECTODERMIC EPITHELIUM.

Holmes (U. of Cal. Pub. Zool. Sept. 1913) gives an account of the study of epithelial cells *in vitro*, which supports the view that the movements of the epithelium known to take place in the healing of wounds are aided by active pseudopodial growths. He found that pieces of larvae cultivated in plasma send out strands of ectodermal cells into the plasma; that these tend to extend upon solid surfaces; that isolated epithelial cells tend to spread out and to creep along such surfaces; that such scattered cells may unite into a continuous membrane; that these cells have a thin, clear ectoplasm which puts forth pseudopodia. He believes these pseudopodia are actively engaged in these migrations of cells. Healing of wounds and restoration of the epithelium is not due then primarily to cell division of cells already at the edges; but much more to active migration, fusion, and spreading of suitable cells.

CROSS INOCULATION OF LEGUMES.

Ewart and Thomson (Proc. R. S. Victoria, Mch. 1913) undertook to determine whether bacteria from the root nodules of native Victorian legumes were able directly to infect the cultivated leguminose plants not native to Victoria. The results were negative. The authors suggest that the parasitic bacteria of particular root nodules are biologically adapted to the conditions in the host plant, and cannot directly adapt themselves to a new host plant.

It was found possible to infect peas and beans with bacteria from acacia tubercles, *after these had been isolated and cultivated on nutrient gelatin*. The conclusion is that the parasitic bacteria, when placed in sterile soil or in non-living media, become more gen-

eralized in power from the saprophytic life and thus step by step become able to infect species farther and farther removed from the original host.

THE BINOCULAR MICROSCOPE.

Felix Jentzsch and Conrad Beck (J. R. M. S. Feb. 1914) present two illuminating articles on the binocular microscope, its past and present. In these papers the binoculars are compared with the monocular as to their effects, and the various types of binoculars are compared and their mechanical structure illustrated. There are three types of binoculars:—

1. Those in which the light from a single objective is geometrically divided, one half going to each eye. The beam of light is itself bisected. Each eye receives all the light from one-half the field.

2. Those in which the pencils of light from every part of one objective field are split, by one device or another, so that a part of each pencil goes into each eye. Thus each eye receives one-half the light from the whole field. In some of the later instruments this sifting or filtering of the light is secured by a half-silvered film which transmits half the light directly, and reflects the other half so that it may be carried to the other eye.

3. Those in which there are two complete monocular microscopes pointed obliquely at the same object. This is useful for low powers only.

The advantages claimed for the newer binoculars of the second class are (1) distinct hygienic value due to less fatigue; (2) a summation of stimuli in both eyes resulting in "vividness"; (3) a certain enhancement of impression due to paralletic effect.

THE JOURNAL OF MICROLOGY.

As an offshoot of the activities of the Postal Microscopical Club, the Secretary, Mr. H. Edwards, is issuing a monthly journal with the above title. It is intended to serve the interests of the amateur and spare-time worker, who finds little to meet his needs in the technical journals. Its space is given to brief articles on simple organisms, to discussions of microscopes and accessories, to methods of mounting microscopic objects, and to queries and answers. There seems to be promise in it of great helpfulness and inspiration to the